

But the saddest part remains to be told. The six fishes having been secured as above, I made no drawing or description of them, but placed them in spirits and transmitted them home with other specimens. From some fault probably in the spirits, these fishes were totally destroyed before arriving in England, although, with the exception of some other fishes, the rest of the specimens were in tolerable order. I trust, however, that, as I know precisely where they are to be found, I shall be able to procure new specimens from the same spot.

V.—*On the Irritability of Plants.* By C. BLONDEAU*.

WE have undertaken, in the course of the present year, a great number of experiments upon the irritability of plants; and these have shown us that the faculty possessed by certain plants, especially the Sensitive Plant, of executing apparently voluntary movements, may be suspended by various agents, such as ether, chloroform, carbonic oxide, protoxide of nitrogen, and essence of turpentine, all of which, as is well known, act upon the nervous system of animals.

Amongst these experiments there is one which seems to us to possess sufficient interest to induce us to submit it to the judgment of the Academy of Sciences. This consists in submitting the Sensitive Plant (*Mimosa pudica*) to the action of the galvanic current.

In performing our experiments we selected four fully developed Sensitive Plants, the sensibility of which was so great that the least contact, such as the friction of a fly's wing, was sufficient to cause their leaflets to close, and even to depress the petiole of the leaf along the stem. After placing the pots in which these plants had been grown upon an insulating support formed by a plate of glass, we attached to the two extremities of the stem in each of them a small copper wire for the purpose of passing the current generated by a single Bunsen's couple. After waiting for a few moments, the plant reopened its leaflets, and the petiole was raised; the current was then passed, care being taken to avoid any movement which could agitate the plant. Under these conditions we observed no effect, the leaflets did not fold up, the petioles did not lower themselves, and the plant seemed to be insensible to the action of electricity.

We then varied the experiment: instead of employing the direct current of the pile, we made use of the induction-

* Translated from the 'Comptes Rendus,' August 12, 1867, pp. 304-308.

current produced by means of a very small Ruhmkorff's coil. The results were then quite different. Scarcely had the current begun to pass, when the leaflets were seen to apply themselves to one another, then the petioles were depressed along the stem, and the movement was rapidly propagated from one end of the plant to the other. According to this result, the plant is sensitive to electrical disturbances, and behaves in this respect exactly like animals.

We wished to ascertain whether the subjection of the plant to electricity for a longer or shorter time would produce in it phenomena worthy of notice; and with this view we caused the induction-current to act upon three of our Sensitive Plants during different periods of time. The first plant submitted to experiment received for five minutes the disturbances produced by the Ruhmkorff's coil, and at the end of this time it was left to itself. For more than a quarter of an hour the plant remained in the state of prostration to which it had been reduced by the electrical action; but by degrees the leaflets opened, and the stalks raised themselves again, and in about an hour the plant had regained its original position, and did not appear to have suffered in the least by the shocks to which it had been subjected.

A second Sensitive Plant was subjected to the same treatment, but continued for ten minutes. At the end of this time the induction-current which traversed the stem was suspended and the plant left to itself. The Sensitive Plant remained in the state of prostration to which it had been brought by the action of the current for more than an hour, and it was only after this lapse of time that the leaflets began to open and the petioles to elevate themselves. This movement moreover took place more slowly and laboriously than in the preceding case. Evidently the plant had been fatigued; for it did not return to its original position until two hours and a half after the current had ceased to traverse it.

Our third Sensitive Plant was subjected to the action of the induced current for five-and-twenty minutes, and then the plant was left to itself. In this case we waited in vain for it to resume its original position: the prolonged electrical action had been sufficient to destroy all irritability, and even to cause the plant to perish; for on the following day we found our Sensitive Plant withered, and even blackened as if it had been struck by lightning.

Our fourth Sensitive Plant was reserved for an experiment which has proved to us that electrical disturbance acts upon plants in the same way as upon animals.

We know that man, as well as the other animals, when sub-

jected to the anæsthetic action of ether, becomes insensible to the disturbances produced by induction-currents, even when these are very powerful. We wished to see whether this would be the case with the Sensitive Plant.

For this purpose we placed our plant under a bell-glass with two tubulatures, through which penetrated the copper wires serving to pass the induction current through the plant. A few drops of ether were poured into the interior of the bell-glass, and in a short time the plant had undergone the anæsthetic effects of the liquid; for, when shaken, it no longer closed its leaflets or manifested any sensibility. In this state we subjected it to the action of the induction-current; and then it gave no sign of sensibility: the petioles remained straight and the leaflets continued open.

These fresh experiments harmonize with all those which have been made upon this subject, and furnish an argument in favour of the opinion of those who think that the movements observed in these plants are effected by the intermediation of organs analogous to those possessed by animals.

VI.—*Revision of the Species of Hyrax, founded on the Specimens in the British Museum.* By Dr. J. E. GRAY, F.R.S., V.P.Z.S.

THE species of the *Hyraces* are well marked both externally and anatomically; but there is great confusion as to the names that have been given to them in the systematic catalogues.

Prosper Alpinus, in his list of animals of Egypt and Arabia, indicated a species of *Hyrax* under the name of *Agnus filiorum Israël*, which Shaw regarded as a large *Jerboa*; but Bruce corrected this error in his account of the *Ashkoko*.

Pallas described and figured the Cape species under the name of *Cavia capensis*, and Buffon as the *Marmotte du Cap*. It is well known to naturalists as *Hyrax capensis*.

Bruce notices a *Hyrax* under the name of *Ashkoko*, which he described as coloured like a wild rabbit, with scattered black bristles and white beneath. This well agrees with a *Hyrax*, now found in Abyssinia, Dongola, and Upper Egypt, which is in the British Museum. Bruce states that the animal is also found in Mount Lebanon and Arabia Petræa.

Schreber, who only knew the animal from Bruce's figure and description, applied to it the scientific name of *Hyrax syriacus*. The Asiatic species is very like the African; but I believe it is distinct; and in that case Schreber's name is